

SBIR
STTR

Description and Objectives

Flexible Base Substrate

Integrated Sensor Node

Interconnects








Averaging Electronics & Communications

- Inductors
- Resonators
- Capacitors
- Filters
- Antenna

(a)

Schedule and Deliverables

Fig. 12. Timeline Chart for Phase I Work for the Development of a Large-Area, Self-Sufficient, MEMS-Skin with Wireless Communications Capability

Activity	Month						
	M 1	M 2	M 3	M 4	M 5	M 6	M 7-30
Phase I							
1. Research applications and determine communications requirements for an integrated sensor skin							
2. Specify materials set and temperature budgets for fabrication							
3. Design a prototype RF-MEMS structure on flexible substrates							
4. Layout a process flow to fabricate large-area RF-MEMS							
5. Fabricate a prototype sensor							
6. Prepare quantitative performance projections for the as-built and the to-be-built large-area sensor network.							
Phase II							
1. Build a large-area MEMS skin with wireless communication capability.							

Distributed vibration monitoring over complex surfaces • Hazardous gas monitoring over large-areas • Potential: Balloon program, SIRTf • Automotive industry: safety testing and continuous monitoring of the auto-body (similarly: ship hull) • Clothing applications for military and commercial applications in the emerging e-textile market • Communications industry: lower footprint devices